

A2
75. An apparatus according to claim 74, wherein said optical device forms an intensity distribution having a decreased intensity portion on said optical axis, the intensity of which is lower than an intensity of a portion located outer thereof on said optical axis.

Please add the following claims 84-104:

A3 Sub B4
84. A scanning exposure apparatus comprising:
an illumination optical system, an optical axis of said illumination optical system being substantially perpendicular to a slit area on a predetermined plane, said illumination optical system comprising an internal reflection type integrator on said optical axis and an optical device substantially arranged on a pupil plane of said illumination optical system between said predetermined plane and said internal reflection type integrator, and said illumination optical system illuminating said slit area with an illumination beam; and
a movable member arranged to relatively move a mask with respect to said slit area during scanning exposure on a substrate with said illumination beam through said mask, and hold said mask at a position on or near said predetermined plane.

85. An apparatus according to claim 84, wherein said optical device changes an intensity distribution of said illumination beam on said pupil plane of said illumination optical system.

86. An apparatus according to claim 85, wherein said optical device selectively forms a first intensity distribution having a decreased intensity portion on said optical axis, the intensity of which is lower than an intensity of a portion located outer thereof on said optical axis, and a second intensity distribution having an increased intensity portion on said optical axis, the intensity of which is higher than an intensity of a portion located outer thereof on said optical axis.

87. An apparatus according to claim 84, wherein the pupil plane has a center area and an outer area around the center area, and said optical device makes an intensity distribution increase in the outer area, in comparison with the intensity distribution in the center area of said pupil plane.

88. An apparatus according to claim 84, wherein said optical device makes an intensity distribution increase in a plurality of areas which are eccentric to said optical axis.

89. An apparatus according to claim 84, further comprising:
another optical integrator different from said internal reflection type integrator,
said another optical integrator arranged within said illumination optical system.

90. An apparatus according to claim 89, wherein said another optical integrator comprises one of an internal reflection type integrator and a fly-eye type integrator.

91. An apparatus according to claim 84, further comprising:
a projection optical system having a pupil plane which substantially
conjugates with an incident plane of said internal reflection type integrator.

92. An apparatus according to claim 91, further comprising:
another movable member arranged in a position on or near an imaging plane
of said projection optical system and movable independently relative to said movable
member, said another movable member holding said substrate.

93. A scanning exposure apparatus comprising:
an illumination optical system, an optical axis of said illumination optical
system being substantially perpendicular to a slit area on a predetermined plane, said
illumination optical system having a pupil plane including a center area and an outer area
around the center area, said illumination optical system comprising a first optical integrator
on said optical axis and an optical device which makes an intensity distribution increase in

the outer area, in comparison with an intensity distribution in the center area of said pupil plane, and said illumination optical system illuminating said slit area with an illumination beam; and

a moveable member arranged to relatively move a mask with respect to said slit area during scanning exposure on a substrate with said illumination beam through said mask, and hold said mask at a position on or near said predetermined plane.

94. An apparatus according to claim 93, wherein said optical device makes the intensity distribution increase in a plurality of areas which are eccentric to said optical axis.

95. An apparatus according to claim 94, wherein said optical device is mounted so as to be able to be inserted into or removed from an optical path of said illumination optical system.

96. An apparatus according to claim 93, wherein said first optical integrator comprises an internal reflection type integrator having an exit plane with a shape substantially equal to said slit area.

97. An apparatus according to claim 96, wherein said optical device is substantially arranged on said pupil plane of said illumination optical system between said first optical integrator and said predetermined plane.

98. An apparatus according to claim 93, wherein said first optical integrator comprises a fly-eye type integrator having a plurality of optical elements each of which has a cross sectional shape substantially equal to said slit area.

99. An apparatus according to claim 98, wherein said optical device is arranged adjacent to said first optical integrator.

100. An apparatus according to claim 93, further comprising:
a second optical integrator different from said first optical integrator, said
second optical integrator arranged within said illumination optical system.

101. An apparatus according to claim 100, wherein said second optical integrator
comprises one of an internal reflection type integrator and a fly-eye type integrator.

102. An apparatus according to claim 100, wherein one of said first and second
optical integrators is an internal reflection type integrator and the other is a fly-eye type
integrator.

103. An apparatus according to claim 93, further comprising:
a projection optical system having a pupil plane which substantially
conjugates with one of an incident plane and an exit plane of said first optical integrator.

104. An apparatus according to claim 103, further comprising:
another movable member arranged in a position on or near an imaging plane
of said projection optical system and movable independently relative to said movable
member, said another movable member holding said substrate.

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